Proposal Full View

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Applicant Information

Organization Name	Salton Sea Authority *
Tax ID	**330883611**
Proposal Name	Habitat Enhancement and Creation: GeoTube Technology and Solar PV Power on Salton Sea Playa, Torres Martinez Wetlands *
Proposal Objective	Objectives are to restore 9 existing ponds at Torres Martinez wetlands, enhance 2 existing ponds, create 20 new acres of habitat using new berm technology (GeoTubes), and develop photovoltaic (PV) capability to power reliable and sustainable water delivery to all ponds. Project will monitor all project elements with scientifically sound protocols developed with USGS; and will develop future funding sources to assure sustainability of the wetland complex, exploring options for expansion *

Budget

Other Contribution	$0.00
Local Contribution	$0.00
Federal Contribution	$180,000.00
Inkind Contribution	$0.00
Amount Requested	$1,339,887.00 *
Total Project Cost	$1,519,887.00 *

Geographic Information

Latitude *	DD(+/-)	33	MM	30	SS	47
Longitude *	DD(+/-)	116	MM	4	SS	31

Longitude/Latitude Clarification	Center of proposed Pond 5	Location	Salton Sea shoreline near mouth of Whitewater River
County		Riverside *	
Ground Water Basin		Coachella Valley-Indio	
Hydrologic Region		Colorado River	
Watershed	Salton Sea Transboundary		

Legislative Information

Assembly District	80th Assembly District *
Senate District	40th Senate District *
US Congressional District	District 45 (CA) *

Project Information

Project Name: Habitat Enhancement and (

Implementing Organization	Salton Sea Authority
Secondary Implementing Organization	Torres Martinez Tribe of Desert Cahuilla Indians
Proposed Start Date	4/1/2013
Proposed End Date	3/31/2016
Project Scope	(1) Plan and permit all project elements; (2) Implement habitat restoration and enhancement activities; (3) Construct new habitat; (4) Install, connect, and operate electric pumps, PV array, and additional plumbing; (5)develop and implement monitoring plans for all project elements with the USGS; (6) operate and maintain project; and (7) provide reports.
Project Description	This project will create and enhance species conservation-type habitat at the north end of the Salton Sea to complement and expand on the project that has been proposed by the State at the south end of the Sea. Target species will include pupfish, brown and white pelicans, breeding shorebirds, and pisciverous birds. The work will be on the same parcel of land as the existing Torres Martinez wetlands at the mouth

	of the Whitewater storm channel, and will complete habitat enhancements in existing ponds at that site. Furthermore, the project will bring restore the entire existing Torres Martinez wetland, which has been challenged with inadequate water provision and maintenance in the past 3 years due to funding constraints. The project will also create new habitat by the construction of a new pond cell using a technology new to Salton Sea restoration work for the construction of berms in wet and saturated soils. This technology utilizes GeoTubes filled with dredged sediment for the construction of berms. This technology has been discussed for use at the Salton Sea, but has not yet been implemented. Finally, the project will construct a pilot scale solar project that will be used to provide power for the operation of the pumps that will supply water from the Whitewater Storm Channel to the habitat. This power supply will provide an element of demonstrable sustainability that will continue past the funded life of this project. An additional solar array will also be installed on playa soils and connected to the solar meter, to allow for evaluation of the sustainability of such development on the playa soils and environment.
Project Objective	Objectives are to restore 9 existing ponds at Torres Martinez wetlands, enhance 2 existing ponds, create 20 new acres of habitat using new berm technology (GeoTubes), and develop photovoltaic (PV) capability to power reliable and sustainable water delivery to all ponds. Project will monitor all project elements with scientifically sound protocols developed with USGS; and will develop future funding sources to assure sustainability of the wetland complex, exploring options for expansion.

Project Benefits Information

Project Benefit Type	Benefit Type	Measurement	Description

Primary	Ecosystem: Shallow Water/ Marsh/ Wetland Habitat	105	Habitat creation and enhancement	

Project Objective

Budget

Other Contribution	0
Local Contribution	0
Federal Contribution	180000
Inkind Contribution	0
Amount Requested	1339887
Total Project Cost	1519887

Geographic Information

Latitude DD(+/-)	33	MM	30	SS	47	
Longitude DD(+/-)	116	MM	4	SS	31	
Longitude/Latitude Clarification	Center of prop	Location	Salton Sea sh			

County Riverside Ground Water Basin Coachella Valley-Indio Hydrologic Region Colorado River WaterShed Salton Sea Transboundary

Legislative Information

Assembly District	80th Assembly District
Senate District	40th Senate District
US Congressional District	District 45 (CA)

Section : Project General Information Questions

Q1 - Project Type

Select the project type from the dropdown list.

Habitat Creation and Enhancement

Q2 - Project Description

Briefly summarize the proposed project (4,000 characters limit). Include the following information: project goals and objectives, project location, proposed work to be funded, proposed approach (overview of techniques and methods), anticipated timeframe, and anticipated benefits.

The project will meet goals of habitat enhancement and creation by enhancing 35 acres of existing wetland habitat, restoring 50 acres of wetland to habitat quality, and creating 20 acres of habitat at the Torres Martinez wetland site. Goals for new construction techniques and long-term maintenance will be met by developing new habitat with GeoTube construction, and providing water delivery with electric pumps powered by on-playa photovoltaic panels. Funding will be for permitting; habitat enhancement and restoration; construction; solar panel installation; and operation, maintenance and monitoring for three years, with plans written for on-going O and M. Appropriate management for the entire project is also part of the funding request; such management will assure the sustainability of the project and will involve the obligation to pursue funding for future development and project maintenance. The project will be developed in phases, with enhancement and restoration activities (for which permitting is complete), and permitting for new habitat and the solar array occurring immediately after funding; habitat construction and solar installation will follow the acquisition of permits. Monitoring using protocols developed in collaboration with the USGS will be for three years. Benefits include new and enhanced habitat for species including pupfish, fish-eating birds, and nesting shorebirds; development of information about important novel construction and power alternatives for use on the Salton Sea playa; and a responsibly and scientifically vetted monitoring strategy to evaluate success and project sustainability.

Q3 - Applicant Contact Information

Provide contact information (name, organization, phone number, and address) for the individual who would be the primary contact regarding the grant proposal.

J. Andrew Schlange, Interim General Manager of Salton Sea Authority at 44-199 Monroe Street, Suite C, Indio, CA 92201, (760) 863-2696, or jdawson@saltonsea.ca.gov.

Q4 - Project Team Qualifications

Identify and describe your project team, including any partnerships with nonprofit groups, citizens' groups, non-governmental organizations, and public or governmental agencies. Identify the proposed Project Manager/Principal Investigator (PM/PI) and key staff as well as the corresponding roles of team members. Provide a brief biographical summary for the PM/PI and each of the key staff members. An organization chart and copies of resumes can be entered in subsequent fields.

The Salton Sea Authority has a long history of managing research and implementation projects associated with the Salton Sea. The Authority will serve as the CEQA Lead Agency, and will be a co-partner for project administration. The Torres Martinez Desert Cahuilla Indian Tribe (Tribe) will engage in a collaborative relationship with the Authority as a co-partner for project administration, as the tribe is a voting member of the Authority. The Tribe has a history of successful project completion for wetlands on the Salton Sea playa. The 85-acre wetland developed by the Tribe in 2005, and augmented and managed over the last seven years remains one of the most successful habitat projects associated with the Salton Sea, and has collaboration with the USGS and the BOR. AMEC Environment & Infrastructure, Inc. (AMEC) has staff members who have been closely involved with habitat development and monitoring projects at

the Salton Sea for over 12 years. Virtually every habitat project in the region (Torres Martinez wetland, Alamo River shallow habitat project, created marsh at the Dos Palmas ACEC, managed marsh at the IID) was planned, implemented, and monitored with the participation of AMEC staff. AMEC has also developed the wetland inventory for the Torres Martinez lands, as well as the Environmental Resources Management Plan for the Tribe. AMEC?s local biologists hold permits for all sensitive wildlife species in the region, and have excellent relationships with State and Federal resource agencies. AMEC?s aquatics division handles water and sediment monitoring. SoCal Dredging, Inc owns a suction dredge with the capability to perform environmentally sensitive projects in small streams and ponds and sequester contaminated sediments in GeoTubes. Doug Whitfield Construction has been involved with habitat development at all stages for the Torres Martinez wetlands, as well as on private hunting clubs in the playa margins, for over 8 years, and has experience in handling the challenges of earthwork on the Salton Sea playa. USGS staff will work with the monitoring team to develop a monitoring strategy to fully disclose the physical, chemical, and biological conditions of the created and enhanced/restored habitats. They will collaborate on water, sediment, and ecological/biological sampling protocols, and will specify QA/QC methods. The Project Administrator for this work will be the Executive Director of the Salton Sea Authority. Debi Livesay will be the Project Manager for this project. She is experienced in wetland development, has been the Water Resources Manager for the Tribe since 2001, and operates an 85 acre wetland that she developed for the Torres Martinez Desert Cahuilla Indian Tribe. She has a strong background in construction and water projects and has worked on various projects on the Colorado River at Lake Havasu for the Chemehuevi Tribe restoring native willow populations and removing salt cedar, monitoring and testing on all projects. Ms. Livesay developed the non-profit foundation Desert Cahuilla Wetland (Temal Pa?lekish), and works as the on-site manager in charge of day-to-day operations for the wetlands on Torres Martinez lands at this site. Carla Scheidlinger will manage the permitting and monitoring for the project. She is an experienced Project involved in Salton Sea restoration work for over 12 years, including permitting, design, implementation, evaluation, and reporting of the Salton Sea Solar Salt Pond project for the Salton Sea Authority in 2000-2003; the sediment study conducted for the Salton Sea Authority in 2004, which evaluated the sediments and selenium that would be exposed were the Salton Sea to decline in level by 25 feet. Ms. Scheidlinger also performed permitting, design, implementation, management, and reporting for the shallow habitat project implemented near the mouth of the Alamo River for Bureau of Reclamation.

Q5 - Related Experience

Describe your experience with completing this type of project or similar projects within the scheduled timeframe and within the allowable budget. Provide a description of recently completed or ongoing projects that support your team’s ability to perform the proposed work.

?Torres Martinez Wetlands. This 100-acre project was developed by the Torres Martinez Tribe, with AMEC staff and Doug Whitfield. The project, funded by the USEPA, involved permitting with the USACOE, the EPA, and the Coachella Valley Water District, design, construction, well drilling, and the development of a detailed operation and management plan. After the initial 85-acre construction of 7 primary water treatment cells, one final water treatment cell, and a habitat cell, two additional cells were developed for habitat for wading shorebirds. Water for the project is pumped from the Whitewater Storm Channel, and is distributed throughout the project with pipes and valves. Construction was in shoreline and playa sediments, in conditions that ranged from dry to almost saturated. This work was completed (including permitting) in 10 months for $680,000. ?Shallow Habitat at the Alamo River. This 100-acre wetland was developed to test the

habitat value of shallow ponds exhibiting a range of salinity levels from 20 ppt to over 100 ppt; and to test the viability of construction methods in saturated sediments. The four cells were constructed near the mouth of the Alamo River with water pumped from the Alamo River and from the Salton Sea. AMEC staff were involved with permitting with Imperial County and the Imperial Irrigation District, design, infrastructure and salinity monitoring, adaptive management, and reporting for this project. Collaboration with the USGS on habitat suitability studies produced valuable information on the value of this kind of habitat for wildlife. The construction was completed in 2 months, and the operation and management continued for 3 years. The cost of the project was $550,000. ?Created Marsh at Dos Palmas ACEC. This 17-acre wetland was developed for the Coachella Valley Water District for the benefit of the California black rail and the Yuma clapper rail. AMEC staff completed the design and permitting for the project, including site suitability analyses; and developed a water management plan for soil reclamation. AMEC implemented the planting plan that they had written, which included greenhouse transplants, locally harvested material from the Torres Martinez wetland, and seeding. AMEC continued the monitoring and maintenance of this site for two years. Permitting was completed in 12 months, construction took 3 months, and planting was performed over a 10-month period. ?Managed Marsh at Imperial Irrigation District. AMEC staff was involved in the design, site modification, planting, and maintenance of this 365-acre managed marsh for the Imperial Irrigation District, constructed on fallowed agricultural land. Post-construction site modifications allowed for the efficient delivery of water to a large mosaic of habitats, and planting of marsh, riparian, mesquite bosque, and upland vegetation was very successful. The site modifications were made with the assistance of local farming specialists, and modifications and the planting of the entire site was completed in 7 weeks. AMEC?s costs for this project were $650,000. ?SoCal Dredging is beginning a project in Newport Beach, CA on Big Canyon Golf Course with the removal of 4,000 cubic yards of sediment contaminated with Selenium. This project will determine the capability of GeoTubes to sequester contaminants in the sediments without re-introducing them to the water body. Contaminated sediments were separated from the dredge spoil and transported off site while the majority of the sediment was suitable for beach replenishment. ?SoCal Dredging is working for the City of San Diego to remove sediments from Sorrento Creek which is immediately upstream from sensitive coastal wetland habitat. The dredge will be used to separate sediment particles down to 34 microns. The return water to Sorrento Creek must meet strict turbidity requirements prior to returning to the Creek. A series of GeoTubes will be used for the return water to meet the standards.

Section : Habitat Creation And Enhancement Project

Project Specific - Habitat Creation And Enhancement Project

Q6 - Project Type

Is your Project a Habitat Creation and Enhancement type of project? If it is go to question #2 of this section. If not, go to the appropriate project type section to complete your application.

1) ☑ Yes
2) ☐ No

Q7 - Project Goals and Objectives

State the habitat restoration goals and objectives of the proposed project. These should be simple, objective statements about what the proposed project seeks to accomplish over the near and long term. The objectives should be measureable and consistent with the Program goals identified in the guidelines. Include a description of performance metrics that could be used to measure the effectiveness in achieving the stated goals and objectives.

Goals: 1. Provide habitat at the north portion of the Salton Sea for targeted species that is complementary to the species habitat conservation area being developed by the state at the south end of the Sea. 2. Expand knowledge about cost-effective construction methods suitable for SHC type projects. 3. Expand knowledge about the sustainability of PV technology on the playa soils and conditions 4. Construct, enhance, and maintain a habitat complex project that is sustainable and has on-going operational capability 5. Provide management for the project such that on-going sustainability in the form of continued funding and/or project support can be generated. Objectives: 1. Complete the habitat enhancements in the three existing habitat cells of the Torres Martinez wetland site, and provide those habitat cells with a reliable water supply. 2. Restore the existing Torres Martinez wetland cells to a condition that will return them to their high value habitat condition. 3. Construct a new habitat cell adjacent to the existing cells using GeoTube technology, and develop it as habitat suitable for target species including pupfish, California black rail, and fish-eating birds. 4. Install sufficient photovoltaic panels to power the pumps for this project such that sufficient water can be provided to all cells during all times of the year. 5. Monitor the habitat quality, GeoTube construction, and photovoltaic array with USGS-approved protocols to determine the quality and long-term sustainability of these project components. 6. Develop future funding sources to assure the on-going sustainability of the wetland complex, and explore options for its expansion.

Q8 - Proposed Habitat Creation or Enhancement

Describe the habitat proposed for creation or enhancement. Include a description of the anticipated features and characteristics of the created or enhanced habitat (such as acreage, water depth, salinity, vegetation cover) upon completion of project construction as well as the characteristics of the habitat when fully established. Indicate the timeframe for achieving full establishment of the habitat.

This project will: ? enhance and restore species conservation-type habitat at the north end of the Salton Sea in existing ponds at the Torres Martinez Desert Cahuilla Wetland Temal Pa?lekish site ? create new habitat adjacent to the existing Torres Martinez wetland cells by the construction of a new pond cell using a GeoTubes, a technology new to Salton Sea restoration work for the construction of berms in wet and saturated soils ? construct a pilot scale PV solar project that will be used to provide power for the operation of the pumps that will supply water from the Whitewater Storm Channel to the enhanced and created habitat. This power supply will provide an element of demonstrable sustainability that will continue past the funded life of this project. ? provide on-going management and future-oriented activity to manage the wetland complex efficiently, and to develop funding and support opportunities for long-term sustainability. The work will proceed on lands owned by the Tribe on the same parcel of land as the existing Torres Martinez wetlands site at the mouth of the Whitewater storm channel. The project will complete habitat enhancements and restoration in existing ponds at that site. Target species for the existing and new ponds will include pupfish, brown and white pelicans, breeding shorebirds, and pisciverous birds. Habitat enhancements will be introduced into two existing ponds. Such enhancements will include rock structures, provision for fish habitat, island surface improvements to enhance nesting success, and roosting and nesting structures. Habitat

restoration will take place in existing ponds 1, 2, 3, and 4, and will include the removal of salt cedar, additional vegetation management, and the renewed provision of water to these habitat cells to restore them to their previous high-quality habitat condition. Other enhancement and restoration activities may include the development of a stand of palo verde and mesquite trees along the berms of the existing ponds, planting seeds and container plants on the berms using drip irrigation. Fish habitat will be developed in Ponds 1, 2, and 3, and improved in Pond 4. Structures to facilitate bird nesting will be installed in Ponds 2, 3, and 4. Pilings and rocks will be installed in Pond 4 as originally planned. Aeration Pond 4 will be provided as well, using a sustainable technology to assure good water quality in the deepest areas. Details of enhancements and restoration activities will be developed with the Work Plan and Monitoring Plan, in collaboration with the USGS, to assure that the best use can be made of project funds for the benefit of target species. The new pond, about 20 acres in size, will also incorporate habitat quality characteristics, as well as the new berm construction technique using GeoTube. A pilot scale photovoltaic (PV) solar array will be installed to provide electric power to a new set of pumps to deliver water to the existing and new pond cells. Monitoring plans and protocols will be developed in collaboration with USGS scientists based in San Diego and elsewhere. These protocols will be implemented to study all aspects of project development for the duration of the project. The project will include provision for evaluating the quality of the created and enhanced/restored habitats, including water and sediment quality, and biological utilization by target species and other wildlife. The GeoTube and solar PV technologies will also be fully evaluated for performance, ability to sequester selenium in the dredged sediments, and for suitability for future use in the Salton Sea playa environment. Project management by Torres Martinez site manager Debi Livesay will include activities targeted for the development of future funding and project support, such that the created and enhanced wetland is assured of a sustainable future past the limit of funding for this project.

Q9 - Current Site Conditions

Describe the current conditions at the site proposed for habitat creation or enhancement and the immediate vicinity. Include information on land ownership and characteristics such as land use, topography, soils and sediments, vegetation, wildlife usage, drainage patterns, contaminants, and any other features pertinent to the proposed project. The description should be sufficient to demonstrate that the site is suitable for the proposed project. Indicate whether the site is occupied by State- or federally listed species or species of special concern. Attach a location map and any photos or figures that illustrate the current condition of the site on the "Site Map and Photos" section of the application under the tab labeled "General Information and Attachments."

Current conditions of the site is of a vegetation composed primarily of upland playa sandy desert scrub on sandy soils with clay lenses. There are with Great Blue Heron nests situated in the area throughout, occupying snag habitat. All snags will be left in place and not removed. No other biologically significant habitat is present, and no endangered species have been found. Cultural resource issues are anticipated to be non-existent or minimal. A map showing the proposed location for the project elements is shown in Attachment 7.

Q10 - Proposed Approach

Generally describe the approach for implementation of the proposed work. Include information on grading, water conveyance, planting, invasive plant removal, erosion control methods, and other key features of the proposed work. Indicate whether the proposed techniques have been successfully implemented at the Salton Sea or in a similar environment. Demonstrate that the best available science has been incorporated into the design.
Attach design drawings and other graphical information related to the design on the "Design Drawings and Figures" section of the application under the tab labeled "General Information and Attachments."
Also attach a Work Plan, Budget, and Schedule as described on the "General Information and Attachments" tab of this application.

The purpose of this project is to not only enhance, restore, and create new habitat for the benefit of targeted wildlife species at the Salton Sea, but also to explore and evaluate novel methods of construction and power sources that could be utilized economically for large-scale implementation of habitat development strategies at the Salton Sea. In order to accomplish these goals efficiently, the project will constructed in close association with an existing highly successful habitat project implemented in 2005 by the Torres Martinez at the margin of the Salton Sea. This is the location where habitat creation will be actually be implemented at a large scale under the Salton Sea Restoration project. Our approach for this project is to keep each project element small, and to develop them at the pilot scale. Considerable effort is expended on the development of scientifically valid monitoring plans and protocols in collaboration with the USGS, and on the implementation of those protocols, so that the benefits and challenges associated with the habitat enhancements, new created habitat, and the novel strategies implemented may be identified and quantified. The habitat enhancements will be implemented into two existing ponds on the Torres Martinez wetland site. The habitat restoration will take place in the remaining existing pond at the Torres Martinez wetland site. The created habitat, using the novel GeoTube construction technique, will be constructed adjacent to those ponds, and is expected to share a berm with one pond, thus minimizing construction costs. The PV array will be installed at a pilot scale, with provision made to power electric pumps using grid power for backup as necessary. This will be the first opportunity to study the performance of PV in the challenging environment of the Salton Sea playa. The project will be developed in phases, with some components developed simultaneously. The phases are summarized in Section 14 below, and in the schedule shown as Attachment 6. The project elements were described in Section 8 above. All requirements for Tribal permitting will be observed during the planning and implementation of this project. In addition, all tribal rules and requirements will be honored as part of the collaborative agreement to be developed with the Authority for implementation of this project. Such rules and requirements include, but are not limited to, TERO, Tribal building permits, provision of cultural monitors, etc.).

Q11 - Project Benefits

Describe the anticipated benefits to be provided by the proposed project and explain how the project would further the goals of the Program. Indicate the species that the habitat is intended to support and describe the relative contribution the project would make in supporting the priority fish and wildlife described in the guidelines. If applicable, describe how the proposed project would benefit adjacent habitat or provide connectivity among existing habitats. Also, describe future actions, if any, needed beyond the scope of this project to fully address the overall project goals.

Here in a single location and with a single project, habitat creation, enhancement, and restoration are proposed; along with a new technology, a proof of concept for photovoltaic, and a responsible monitoring and evaluation process.. The habitat enhancement and restoration portions of the project are "shovel ready" and will not require additional permitting, as the habitat cells have already been constructed. New work will be done under a Categorical Exemption. The remaining project elements will require minimum permitting, as they will be developed on newly exposed playa with few environmental considerations. Newly created habitat will be developed on the ground, and existing habitat will be enhanced and restored, with the entire project given a measure of definable sustainability. The project will include provision for evaluating the quality of the created, enhanced, and restored habitat, and will utilize at a pilot scale two technologies for testing on the playa surface: GeoTube construction for habitat cell berms, and solar photovoltaic panels for project energy.The project will be sustainable, as it will utilize power that will be generated by the project elements themselves. The on-going participation of the Torres Martinez project manager, Debi Livesay, assures that over the project?s 3-year life, additional funding sources will be explored and developed so that the habitats developed will be sustainable and functional into the future. Partners and Collaborators 1. This proposal is developed as a collaboration between the Authority and the Tribe. The project therefore is implemented by a Joint Powers Authority that represents a variety of local entities and interests, and includes the Tribe as a Co-Partner. 2. Desert Cahuilla Wetland Temal Pa?lekish is a local non-profit agency that has been managing the Tribe?s wetlands for over 3 years. Its Board includes representatives of local agencies and private interests. 3. The support and involvement of the USGS will bring unassailable scientific rigor to this project. The USGS has no vested interest in the outcome of the work, and simply assures that the data generated will withstand peer reviewed scientific scrutiny. Permitting simplified 1. The Salton Sea Authority will serve as Lead Agency to conduct CEQA. 2. The existing ponds have already undergone CEQA, and any additional work can be conducted there under a Categorical Exemption. 3. The new pond and the solar array will be positioned on playa lands with few if any permitting requirements 4. Any NEPA requirements will be met with the cooperation of the BIA, US Fish and Wildlife Service, and the US Army Corps of Engineers. Variety of Deliverables 1. Habitat: Enhancement, restoration, and creation of habitat will all be accomplished under this project. 2. Solar pilot project: The capabilities of PV panels to perform and remain functional under the harsh physical conditions of the playa will be evaluated for the first time. 3. Novel infrastructure implementation and evaluation: GeoTubes have been used to very good effect for other similar applications in other parts of the country, and have great promise for the development of species habitat in the Salton Sea. This project will develop structurally sound berms using an ?in the wet? construction technique, and will evaluate the sustainability of those berms over time. Funding cost-share Opportunities 1. The Tribe is pursuing a Bureau of Indian Affairs (BIA) 638 Water Resources grant that would quantify water resources available to the Tribe for continued work for wetland projects on its land. If funded, this grant would substantially assist in developing strategies for the long-term sustainability of this, and future, wetland projects. 2. The Tribe has current US EPA 319(h) and CWA 106 grants that total $180,000 that support on-the-ground staff that will be used for the Operation and Maintenance of this project.

Q12 - Operations and Maintenance (O&M)

Generally describe how the project would be operated and maintained over time. Include a description of periodic maintenance activities that would be required, an estimate of projected costs, and a description of the frequency and timing of activities such as water management, vegetation management, sediment removal, and other O&M activities relevant to the proposed project. Indicate who would perform long-term maintenance and describe how the O&M would be funded.
The applicant will be expected to prepare a detailed O&M Plan for the project, which should be included as a task component of the Work Plan and Budget.

Operation and maintenance will be continued by the Torres Martinez Desert Cahuilla Wetland Temal Pa?lekish personnel, as it has been since 2005. Usual operation and maintenance, funded by the US EPA grants, includes the following activities: ? Daily operation of the pump for 8 to 10 hours on 3 to 4 days a week. ? Daily readings of staff water levels logged and recorded. ? Daily maintenance on the pumps and pipes and other equipment as necessary. ? Daily surveillance of animals and other wildlife. ? Weekly beach inspections for dead birds and fish. ? Monthly inspections of bird watching platforms. ? Quarterly water quality monitoring. ? Annual reporting of all water quality data to US EPA. ? Annual heavy cleaning of all cells and ponds to remove debris and brush. ? Annual planting of new vegetation as necessary. ? Annual replacement of habitat features as necessary. ? Seasonal heavy patrols for illegal hunters and other trespassing. ? 24 hour security of all buildings and wetland properties. Lessons Learned from the operation and maintenance the past 7 years have been: ? Don?t use diesel as your main source of power. Alternative energy is imperative for the day to day operation of the project. Pond 3 is seldom wet during late spring to mid-fall months due to insufficient pumping capability; Pond 4 has never been wet for the same reason. This project will implement solar PV as well as supplemental electric power for the sustainable provision of power to pumps sufficient to deliver water to all ponds in all seasons. ? Don?t completely take down all ponds or cells in the same year. Staging of operation and maintenance of ponds is necessary. There is a small window of opportunity each season. This project will also allow for scheduling of maintenance in appropriate seasons. ? Maintenance activities during the past year included work using in-house staff, as well as Doug Whitfield Construction and the California Conservation Corps to remove salt cedar from the habitat ponds, as has been done to some degree each year previously. This year, the work was more extensive, as it was because we did a five-year cleanout. When the work was completed in June 2012, nesting was observed by the USFWS to have had begun early on the Desert Cahuilla Wetland Temal Pa?lekish. The wetland was therefore left dry for the balance of the nesting season; water delivery will begin to selected ponds in October 2012. This project will assure that maintenance and monitoring is done is such as way as to both protect species nesting in the habitat as well as to maintain the on-going functionality of all habitat ponds. Operation and Maintenance will be conducted under the direction of Ms. Debi Livesay, Project Manager

Q13 - Monitoring and Adaptive Management

Generally identify the areas of scientific uncertainty associated with the project and describe the plan to adaptively manage the habitat to achieve the project goals and objectives. Describe the monitoring that would be conducted to measure performance and inform adaptive management adjustments in the future.
The applicant will be expected to prepare a detailed Monitoring and Adaptive Management Plan for the project, which should be included as a task component of the Work Plan and Budget. The plan will be for a minimum of 5 years. Monitoring reports are to be submitted annually to DFG. Funding for implementation of the first 2 years of monitoring under the plan can be included in the applicant's budget. Indicate the funding source for the monitoring and adaptive management beyond the initial 2 years.

The monitoring program for this project will be carried out for the three-year period of the project. All monitoring plans and protocols will be developed in collaboration with the USGS to assure that the most important habitat parameters will be monitoring using methods that conform to best scientific practice. Monitoring will be conducted in the existing ponds of the Torres Martinez wetland where habitat enhancement and restoration activities are proposed. Annual monitoring will include physical, chemical, and biological properties of the ponds. Monitoring is anticipated to include evaluation of water quality and sediment quality, as well as of biological and ecological characteristics of the ponds, including an inventory of avian species present and species nesting in each pond, as well as an evaluation of the nature of the utilization of the habitat and of the enhancement features (islands, snags, nesting towers, etc.). A monitoring plan will be written during the first year of the project, and will be implemented for three years. Monitoring will also be conducted in the new GeoTube pond. This monitoring will be conducted for the same parameters as identified for the enhanced ponds. Monitoring will be done quarterly for the performance of the GeoTube berm. The tube will be evaluated for breakage, seepage, sloughing of its cap, and of the condition of the material capping it. In addition, monitoring will be done for the ability of the GeoTube to sequester selenium from the dredged sediments. Sediment quality of the material filling the GeoTube will be evaluated, as well as the quality of the water that seeps from the tubes as they dewater. A monitoring plan will be written during the first year of the project, and will be implemented for three years. The proposed PV array will also be monitored for performance and sustainability. This monitoring will be conducted under the direction of the USGS, and the monitoring plan will be developed in consultation with the USGS. The purpose of the monitoring will be to determine the long-term sustainability of photovoltaic panels installed on the edge of the Salton Sea playa, and to evaluate their cost effectiveness and efficiency in supplying power to restoration projects on the playa.

Q14 - Phasing

Indicate whether and how the proposed work might be phased or reduced if the project is funded at a reduced level. Explain how project benefits and total cost of the project would be affected if portions were deferred to later years. Also, describe the extent to which the proposed habitat could be expanded in the future and the cost effectiveness of those additions.
If the proposed work is a continuation of previously completed work, describe the extent to which the continued success of the prior work is dependent upon the proposed work. If the previous work was funded by a State agency, list the project name and year the grant was awarded.

The project will be phased such that it can be implemented efficiently and quickly. The phased approach was referred to in the Approach section of this proposal, and is described in more detail below. Phase 1: Project element 1: habitat enhancement and restoration 1. Develop and

implement an MOU with the Torres Martinez Tribe of Desert Cahuilla Indians, and develop disclosure and confidentiality agreements with the BIA if the water study project is funded. 2. Complete design for, and implement on the ground, habitat enhancements and restoration activities in existing wetland cells 3. Replace diesel pumps with electric pumps for water supply 4. Update and improve water supply infrastructure Project element 2: habitat creation with GeoTube 1. Conduct permitting for new habitat cell 2. Develop construction-ready drawings for new habitat cell Project element 3: solar photovoltaic 1. Develop installation specifications 2. Finalize wiring and assure adequacy of existing wiring and panels for delivery of power to pumps Phase 2: 1. Project element 1: 1. Deliver water to enhanced and restored cells 2. Develop O&M manual for these cells 3. Develop monitoring plans and protocols for these cells 2. Project element 2: 1. Construct new cell using GeoTubes (dredging, installing, capping, water delivery infrastructure) 2. Develop infrastructure monitoring and evaluation plans and protocols 3. Install water delivery and metering infrastructure 4. Deliver water to cell in two phases: utilization and maintenance. 3. Project element 3: 1. Install photovoltaic panels 2. Wire, meter, and test panels 3. Power pumps using solar energy to complete elements 1 and 2 for water delivery Phase 3: 1. Project element 1: 1. Operate, maintain, and monitor for 3 years (or funded life of project) 2. Project element 2: 1. Develop O&M plans 2. Operate, maintain, and monitor for 3 years 3. Project element 3: 1. Develop O&M and AM plans 2. Operate, maintain, and monitor for 3 years

Q15 - Availability of Water

If the proposed project requires water, describe the water requirements (volume and quality) and identify the source(s). Explain the reliability of the water source and describe how the proposed habitat would be influenced by a temporary reduction or interruption of water supply or changes in water quality. Identify the sources of funding for the water supply.

The Desert Cahuilla Wetland Temal Pa?lekish is currently using only reuse water that is delivered to the Salton Sea via the White Water River Storm Channel. There is no contest to the use of this water, since the Tribe and the Temal Pa?lekish Wetland have an agreement with the Coachella Valley Water District to use this outfall of water as necessary. This is the water that will be used at the same site for this project.

Q16 - Adjacent Property Impacts

Describe how the proposed project might affect adjacent property and landowners. Disclose any known concerns or opposition to the project or land access issues.

Properties that are adjacent to the project site include the following: ? 2 private duck clubs (several parcels ? Imperial Irrigation District lands (2 parcels) ? Bureau of Reclamation lands (1 parcel) These properties have enjoyed an amicable relationship with the Torres Martinez Wetlands for the past 6 years. The proposed new development on this site is compatible with the existing wetlands, and no controversy or conflict is anticipated.

Q17 - Sustainability and Climate Change

Describe the resilience of the proposed habitat to changing conditions, such as higher average temperatures, decrease in the surface elevation of the Salton Sea, and increased salinity in the Salton Sea. Indicate the period of time that the proposed habitat would be functional.

The consensus among climate projections for the next 90 years is that the Great Basin and Mojave Desert will warm and that annual precipitation will remain near historical values in the north and decrease in the south. This scenario points to an increased need for irrigation for crops in the southern portion of the region and indicates that irrigation efficiency will become increasingly important. For the Tribe and the Salton Sea, this translates into a prediction that the level of the Salton Sea will fall (which is already assured if the water transfer is implemented), with the result that Tribal lands now under the Salton Sea will become exposed. Such exposed sediments will probably result in dust emissions, which the Tribe will be responsible for controlling. This project will help to address the issue of air quality associated with emissions from a desiccating playa. If wetland cells can be developed in areas using GeoTube technology before the playa surface dries and becomes emissive, air quality will be improved. In addition, it can be anticipated that the cost of imported water will increase. Quantification of water rights for the Tribe will be of great value in assuring that the Tribe is able to develop the water that they will need for future development or use. Groundwater resources have been poorly understood in the playa environment, and the Tribe is pursuing a Bureau of Indian Affairs (BIA) grant with the USGS to explore and quantify groundwater resources that could be available in the future for wetland habitat development. This project will allow the Tribe to anticipate how reduced water supplies for wetland development caused by climate change could be made up with groundwater resources. This approach allows for greater assurance of on-going sustainability of the project. This approach is consistent with the goals, objectives, and proposed implementations regarding climate change that are articulated in the Tribe?s Environmental Resources Management Plan (ERMP) developed in 2011.

Section : Water Quality Improvement Project

Water Quality Improvement Project

Q6 - Project Type

Is your project a Water Quality Improvement type of project? If it is go to question #2 of this section. If not, go to the appropriate project type section to complete your application.

1) ☐ Yes
2) ☑ No

Q7 - Project Goals and Objectives

State the goals and objectives of the proposed project. These should be simple, objective statements about what the proposed project seeks to accomplish over the near and long term. The goals should be measureable and consistent with the Program goals identified in the guidelines. Include a description of performance metrics that could be used to measure the effectiveness in achieving the stated goals and objectives.

na

Q8 - Proposed Water Quality Improvements

Describe the proposed water quality improvement project, including physical features of the project, the source and quality of the water to be improved, the water quality issue to be addressed (for example, selenium, nutrients), the anticipated level of improvement, the location of any proposed facilities, the anticipated volume of water with improved quality, the anticipated use of improved water, the amounts and disposition of contaminants removed, and other relevant characteristics of the proposed project. Indicate the timeframe for the project to become fully functional.

na

Q9 - Current Site Conditions

If the project requires the construction or installation of facilities, describe the current conditions at the location(s) where the facilities would be installed. Include information on characteristics such as land use, topography, soils, vegetation, wildlife usage, drainage patterns, contaminants, and any other features pertinent to the proposed project location. If the proposed project involves changes in land use practices in the watershed, describe the characteristics of the area affected. Indicate whether the site is occupied by State- or federally listed species or species of special concern.
Attach a location map and any photos or figures that illustrate the current condition of the site or area on the "Site Map and Photos" section of the application under the tab labeled "General Information and Attachments."

na

Q10 - Proposed Approach

Generally describe the approach for implementation of the proposed work. As relevant, include information on construction, water conveyance, planting, and other key features of the proposed work. Indicate whether the proposed techniques have been successfully implemented at the Salton Sea or in a similar environment. Demonstrate that the best available science has been incorporated into the approach.
If relevant, attach design drawings and other graphical information related to the design on the "Design Drawings and Figures" section of the application under the tab labeled "General Information and Attachments."
Also attach a Work Plan, Budget, and Schedule as described on the "General Information and Attachment" tab of this application.

na

Q11 - Project Benefits

Describe the anticipated benefits to be provided by the proposed project and explain how the project would further the goals of the Program. Identify the species or habitats that would benefit from the water quality improvement and describe the relative contribution the project would make in supporting the priority fish and wildlife described in the guidelines.

na

Q12 - Operations and Maintenance (O&M)

Generally describe how the project would be operated and maintained over time. Include a description of periodic maintenance activities that would be required, an estimate of projected costs, and a description of the frequency and timing of activities such as water management, vegetation management, sediment removal, and other O&M activities relevant to the proposed project. Indicate who would perform long-term maintenance and describe how the O&M would be funded.
The applicant will be expected to prepare a detailed O&M Plan for the project, which should be included as a task component of the Work Plan and Budget.

na

Q13 - Monitoring and Adaptive Management

Generally identify the areas of scientific uncertainty associated with the project and describe the plan to adaptively manage the project to help ensure that the project goals and objectives are achieved. Describe the monitoring that would be conducted to measure performance and inform adaptive management adjustments in the future.
The applicant will be expected to prepare a detailed Monitoring and Adaptive Management Plan for the project, which should be included as a task component of the Work Plan and Budget. Monitoring reports are to be submitted annually to DFG. Funding for implementation of the first two years of monitoring under the plan can be included in the applicant's budget. Indicate the funding source for the monitoring and adaptive management beyond the initial two years.

na

Q14 - Phasing

Indicate whether and how the proposed work might be phased or reduced if the project is funded at a reduced level. Explain how project benefits and total cost of the project would be affected if portions were deferred to later years. Describe the extent to which the proposed project could be expanded in the future and the cost effectiveness of those additions.
If the proposed work is a continuation of previously completed work, describe the extent to which the continued success of the prior work is dependent upon the proposed work. If the previous work was funded by a State agency, list the project name and year the grant was awarded.

na

Q15 - Availability of Water

Describe the water requirements (volume and quality) and identify the source(s). Explain the reliability of the water source and describe how the proposed project would be influenced by a temporary reduction or interruption of water supply or changes in water quality.

na

Q16 - Adjacent Property Impacts

Describe how the proposed project might affect adjacent property and landowners. Disclose any known concerns or opposition to the project or land access issues.

na

Q17 - Sustainability and Climate Change

Describe the sustainability of the proposed project and its resilience to change.

na

Section : Research Project

Research Project

Q6 - Project Type

Is your project a Research type of project? If it is go to question #2 of this section. If not, go to the appropriate project type section to complete your application.

1) ☐ Yes
2) ☑ No

Q7 - Research Goals and Objectives

State the goals and objectives of the proposed research project.

na

Q8 - Proposed Research

Describe the proposed research, the scientific basis, and the questions that the research would investigate. Include any conceptual models that may help clarify the areas of uncertainty. Attach any relevant conceptual models on the "Design Drawings and Figures" section under the "General Information and Attachments" tab.

na

Q9 - Relevance to Program Goals

Describe how the proposed research directly relates to the successful creation and maintenance of habitat at the Salton Sea in the near term. Within the context of previous attempts to collect similar information, describe how the proposed research would fill a data gap or provide new information useful to improving existing and future habitat values.

na

Q10 - Research Methods

Describe the approach and design of the proposed research. Include the initial hypotheses to be tested, anticipated experimental methods, and likely statistical analyses. For research conducted in the field, indicate the locations where work would occur.
Attach maps and other graphical information related to the research on the "Design Drawings and Figures" section of the application under the tab labeled "General Information and Attachments."
Also, attach a Work Plan, Budget, and Schedule as described on the "General Information and Attachment" tab of this application.

na

Q11 - Timeframe

Indicate how soon after project initiation the proposed research could provide managers with preliminary interpretations of data that may lead to insight into creation and management of habitats.

na

Q12 - Phasing

Indicate whether and how the proposed work might be phased or reduced if the project is funded at a reduced level. Explain how project benefits and total cost of the project would be affected if portions were deferred to later years.

na

Q13 - Benefits of the Research

Describe the anticipated benefits to be provided by the proposed research and explain how the results would further the goals of the Program. Indicate the species that would ultimately benefit from the work and describe the relative contribution the project could make in supporting the priority fish and wildlife described in the guidelines.

na

Section : Adaptive Management Experimentation Project

Adaptive Management Experimentation Project

Q6 - Project Type

Is your project an Adaptive Management Experimentation type of project? If it is go to question #2 of this section. If not, go to the appropriate project type section to complete your application.

1) ☐ Yes
2) ☑ No

Q7 - Adaptive Management Goals

State the goals and objectives of the proposed adaptive management experiment. These should be simple, objective statements about what the proposed work seeks to accomplish over the near and long term. The goals should be measureable and consistent with the Program goals identified in the guidelines. Include a description of performance metrics that would be used to measure the effectiveness in achieving the stated goals and objectives.

na

Q8 - Proposed Experiment

Describe the proposed adaptive management experiment. Include a description of the habitat or management practices that would be manipulated for the purposes of the experiment and the timeframe over which the experiment would be conducted. Describe the rationale for the proposed experiment, including the scientific basis and any conceptual models that help clarify the areas of uncertainty.
Attach any relevant conceptual models on the "Design Drawings and Figures" section under the "General Information and Attachments" tab. Indicate the timeframe for the project to become fully functional.

na

Q9 - Current Site Conditions and Management

Identify the owners and land managers of the site where the proposed work would be conducted. Describe the current conditions at the site proposed for the experiment, including information on the physical characteristics pertinent to the proposed project. Describe how the site is managed, with particular attention to management actions that may be modified as a result of the experiment. Indicate whether the site is occupied by State- or federally listed species or species of special concern.
Attach a location map and any photos or figures that illustrate the current condition of the site on the "Site Map and Photos" section of the application under the tab labeled "General Information and Attachments."

na

Q10 - Proposed Approach

Describe the approach for implementation of the proposed work. Include information on the study design, monitoring requirements, and a description of how management would be adapted as a result of project outcomes. Also, describe the extent of any additional activities at the site needed to accommodate the experiment, such as earthwork, installation of water conveyance structures, planting, invasive plant removal, erosion control, and other key actions of the proposed work. Indicate whether the proposed techniques have been successfully implemented at the Salton Sea or in a similar environment.
Attach design drawings and other graphical information related to the experiment on the "Design Drawings and Figures" section of the application under the tab labeled "General Information and Attachments."
Also attach a Work Plan, Budget, and Schedule as described on the "General Information and Attachment" tab of this application.

na

Q11 - Project Benefits

Describe the anticipated benefits to be provided by the proposed project and explain how the project would further the goals of the Program.

na

Q13 - Phasing

Indicate whether and how the proposed work might be phased or reduced if the project is funded at a reduced level. Explain how project benefits and total cost of the project would be affected if portions were deferred to later years.

na

Q13 - Availability of Water

If the proposed project requires additional water, describe the water requirements (volume and quality) and identify the source(s). Explain the reliability of the water source and describe how the proposed project would be influenced by a temporary reduction or interruption of water supply or changes in water quality.

na

Q14 - Adjacent Property Impacts

Describe how the proposed project might affect adjacent property and landowners. Disclose any known concerns or opposition to the project or land access issues.

na

Section : Attachments Section

Attachments Section

A1 - Authorizing Resolution

Attach a scanned copy of a signed resolution or equivalent document from the applicant's governing board or officer authorizing the submittal of this application.
Last Uploaded Attachments: Attachment 1 Resolutions.pdf

A2 - Applicant Team Organization: Chart

Attach an organization chart indicating key staff and their roles relative to the proposed work.
Last Uploaded Attachments: Attachment 2 Organizational Chart SSA TM FAP.pdf

A3 - Resumes/CVs

Attach resumes/CVs for the PM/PI and key staff proposed for the project. You can combine all the CVs in one document as long as the individuals are identified.
Last Uploaded Attachments: Attachment 3 Resumes SSA TM FAP.doc

A3 - Continued

Upload additional CVs and Resumes here if needed.
Last Uploaded Attachments: Blank.docx

A3 - Continued

Upload additional CVs and Resumes here if needed.
Last Uploaded Attachments: Blank.docx

A4 - Work Plan

Attach a work plan with a task-by-task description of how the proposed work would be conducted and identify the deliverables for each task. The work plan must also identify which costs are being directly funded by the Program.
Last Uploaded Attachments: Attachment 4 WorkPlan SSA TM.doc

A4 - Continued

Upload here any additional documents describing the work plan if needed.
Last Uploaded Attachments: Blank.docx

A4 - Continued

Upload here any additional documents describing the work plan if needed.
Last Uploaded Attachments: Blank.docx

A4 - Continued

Upload here any additional documents describing the work plan if needed.
Last Uploaded Attachments: Blank.docx

A5 - Budget

Attach a budget for the requested funding showing the breakdown of estimated costs of the proposed work by task, including a list of equipment to be purchased as part of the project. The budget should also indicate the total cost of the project and the source of additional funding, if any, including any cash contributions, in-kind services, volunteer effort, maintenance and operation costs, and other grant funding. Please differentiate the grant request from the total project budget and demonstrate how the grant award would be tracked separately. Also, describe the basis for the cost estimates and the methods used to calculate them.
Last Uploaded Attachments: Attachment 5 Budget SSA TM.docx

A5 - Continued

Upload any additional documents describing the Budget if needed.
Last Uploaded Attachments: Blank.docx

A5 - Continued

Upload any additional documents describing the Budget if needed.
Last Uploaded Attachments: Blank.docx

A5 - Continued

Upload any additional documents describing the Budget if needed.
Last Uploaded Attachments: Blank.docx

A6 - Schedule

Attach a schedule for completing the proposed work by task, and indicate significant milestones. This can be submitted in Microsoft Word, Excel, or Project file formats.
Last Uploaded Attachments: Attachment 6 SCHEDULE SSA TM FAP.xls

A6 - Continued

Upload here any additional documents describing the Schedule if needed.
Last Uploaded Attachments: Blank.docx

A6 - Continued

Upload here any additional documents describing the Schedule if needed.
Last Uploaded Attachments: Blank.docx

A6 - Continued

Upload here any additional documents describing the Schedule if needed.
Last Uploaded Attachments: Blank.docx

A7 - Site Maps and Photos

Attach a location map indicating the proposed project and vicinity, and any photos and diagrams that would help illustrate the current condition of the proposed site. Please include a legal description of the project site, if available.
Last Uploaded Attachments: Attachment 7 Site condition SSA TM FAP.pdf

A7 - Continued

Upload any supplemental maps or photos related to the project if needed.
Last Uploaded Attachments: Blank.docx

A7 - Continued

Upload any supplemental maps or photos related to the project if needed.
Last Uploaded Attachments: Blank.docx

A7 - Continued

Upload any maps or photos rlated to the project if needed.
Last Uploaded Attachments: Blank.docx

A8 - Design Drawings and Figures

Attach design drawings that depict the proposed habitat creation or enhancement as well as any diagrams or figures that would help illustrate project features and assist in the review of the proposal.
Last Uploaded Attachments: Attachment 8 Drawings SSA TM FAP.pdf

A8 - Continued

Upload here any supplemental drawings and figures related to the project if needed.
Last Uploaded Attachments: Blank.docx

A8 - Continued

Upload here any supplemental drawings and figures related to the project if needed.
Last Uploaded Attachments: Blank.docx

A8 - Continued

Upload here any supplemental drawings and figures related to the project if needed.
Last Uploaded Attachments: Blank.docx

A9 - Letters of Support

Attach any letters or other evidence from local entities indicating support for the proposed project.
Last Uploaded Attachments: Attachment 9 Letters of Support.pdf

A9 - Continued

Upload any letters of support you may have received.
Last Uploaded Attachments: Blank.docx

A10 - Operation and Maintenance Plan

Upload your Operation and Maintenance plan if needed.
Last Uploaded Attachments: Attachment 10 O&M Plan SSA TM FAP.doc